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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/541,115	03/31/2000	Knut S. Grimsrud	10559/142001/P7712	3467

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EXAMINER

PEUGH, BRIAN R

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 08/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/541,115

Applicant(s)

GRIMSRUD ET AL.

Examiner

Brian R. Peugh

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-27, 31-33 and 37-39 is/are allowed.
- 6) ☒ Claim(s) 1-24, 28-30, 34-36, 40-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

This Office Action is in response to applicant's communication filed June 24, 2002 in response to PTO Office Action dated March 14, 2002. The applicant's remarks and amendment to the specification and/or claims were considered with the results that follow.

Claims 1-42 have been presented for examination in this application. In response to the last Office Action, claims 22-42 have been added. Claims 1-21 have been amended.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claims 1, 8, and 15 recite reading prefetch data in response to a request for prefetch data. Once a request for demand data is received, the request is satisfied with prefetch data prior to completing the reading of all of the prefetch data. According to the claim language, two interpretations of the claims could be found. First, the reading of prefetch data could be accomplished using previously prefetched data. This could occur should the prefetched data already be stored in a memory where the

contents could be read. Second, the reading of the prefetch data could be done as the data is prefetched and received by the computer system, meaning that the prefetch data is read in real-time as the prefetch operation is being carried out.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-13, 15-20, 22-24, 28-30, 34-36, 40, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Macon, Jr. et al. (US# 5,600,817).

Regarding claims 1, 5, 8, 12, 15, 19, 22, 28, 34, and 40, Macon, Jr. et al. teaches a read-ahead disk caching system. When a demand address is received for data (first predetermined amount of data), corresponding cache data is returned to the requestor. Macon, Jr et al. teaches first checking a data cache for the demand data before prefetching a number of units of data, and should the demand data be found in the data cache, the data is immediately returned to the requestor (column 5, lines 46-51). Once the data has been found, there is no need to continue checking the data cache.

Regarding claims 2, 3, 9, 10, 16, 17, 23, 29, and 35, Macon, Jr. et al. teaches that the system for keeping track of the data that has been read uses the length counter feature (column 6, lines 37-46; column 10, lines 11-17).

Regarding claims 4, 11, and 18, the data cache contains prefetch data. When the data cache is checked for a piece of data before prefetching the data, and the data is found, the requested data is actually the demand data whereas the rest of the data in the data cache is still prefetched data.

Regarding claims 6, 13, 20, 22, 28, 34, and 41, should the data found within the data cache not be sufficient to fulfill the demand request (cache miss due to not enough data being prefetched, for example), a second operation is undertaken to fetch the requested data and prefetch at least one other piece of data into the data cache. This second operation is necessary to satisfy the request for the demand data.

Regarding claims 24, 30, and 36, a length counter is used for determining an amount of data that has been read prior to completion of the read address command (column 6, lines 37-46).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 14, 21, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Macon, Jr. et al. (US# 5,600,817) and Cherukuri (US# 6,006,307)

The difference between the claimed subject matter and that of Macon et al., disclosed supra, is that the claims recite receiving a second request for prefetch data that is out of sequence relative to the first request, whereupon the first requested data is stored up to a point at which the second request is received. Cherukuri teaches a multiprocessor system, where each processor is able to independently and concurrently access memory banks for separate prefetch operations. Thus, the second processor could begin a prefetch operation on one memory bank while the first processor is

conducting a prefetch operation on another memory bank, where the first processor is storing, and continues to store, data after the second prefetch operation has begun. Therefore it would have been obvious to one of ordinary skill in the art having the teachings of Macon, Jr. et al. and Cherukuri before him at the time the invention was made to modify prefetching scheme of Macon, Jr. et al. to include the simultaneous processor prefetching system of Cherukuri, because then the number of clock cycles for completing a demand/prefetching request would be decreased due to the fact that more than one processor is able to perform prefetching operations.

***Allowable Subject Matter***

Claims 25-27, 31-33, 37-39 are allowed.

***Response to Arguments***

Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Peugh whose telephone number is 703-306-5843. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm. The examiner can also be reached on alternate Friday's.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew M. Kim, can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is 703-746-7239. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

  
MMK/BRP

August 23, 2002

  
MATTHEW KIM  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100